



Keep Food and Water Safe After a Disaster or Emergency

Food may not be safe to eat during and after an emergency. Safe water for drinking, cooking, and personal hygiene includes bottled, boiled, or treated water. Your state, local, or tribal health department can make specific recommendations for boiling or treating water in your area.

After Flooding

Food: Throw away food that may have come in contact with flood or storm water, perishable foods, and those with an unusual odor, color, or texture. When in doubt, throw it out.

Water: Do not use water you suspect or have been told is contaminated to wash dishes, brush your teeth, wash and prepare food, wash your hands, make ice, or make baby formula.

Food

Note: Do not use your fireplace for cooking until the chimney has been inspected for cracks and damage. Sparks may escape into your attic through an undetected crack and start a fire.

Identify and throw away food that may not be safe to eat.

- Throw away food that may have come in contact with flood or storm water.
- Throw away food that has an unusual odor, color, or texture. When in doubt, throw it out.
- Throw away perishable foods (including meat, poultry, fish, eggs and leftovers) in your refrigerator when the power has been off for 4 hours or more.
- Thawed food that contains ice crystals can be refrozen or cooked. Freezers, if left unopened and full, will keep food safe for 48 hours (24 hours if half full).
- Throw away canned foods that are bulging, opened, or damaged.
- Food containers with screw-caps, snap-lids, crimped caps (soda pop bottles), twist caps, flip tops, snap-open, and home canned foods should be discarded if they have come into contact with floodwater because they cannot be disinfected.
- If cans have come in contact with floodwater or storm water, remove the labels, wash the cans, and dip them in a solution of 1 cup (8 oz/250 mL) of bleach in 5 gallons of water. Re-label the cans with a marker. Include the expiration date.
- Do not use contaminated water to wash dishes, brush your teeth, wash and prepare food, wash your hands, make ice, or make baby formula.



Store food safely

- While the power is out, keep the refrigerator and freezer doors closed as much as possible.

Feeding infants and young children

- Breastfed infants should continue breastfeeding. For formula-fed infants, use ready-to-feed formula if possible. If using ready-to-feed formula is not possible, it is best to use bottled water to prepare powdered or concentrated formula. If bottled water is not available, use boiled water. Use treated water to prepare formula only if you do not have bottled or boiled water.
 - If you prepare formula with boiled water, let the formula cool sufficiently before giving it to an infant.
 - Clean feeding bottles and nipples with bottled, boiled, or treated water before each use.
 - Wash your hands before preparing formula and before feeding an infant. You can use alcohol-based hand sanitizer for washing your hands if the water supply is limited



Clean and sanitize food-contact surfaces.

CDC recommends discarding wooden cutting boards, baby bottle nipples, and pacifiers. These items cannot be properly sanitized if they have come into contact with flood waters. Clean and sanitize food-contact surfaces in a four-step process:

1. Wash with soap and warm, clean water.
2. Rinse with clean water.
3. Sanitize by immersing for 1 minute in a solution of 1 teaspoon of chlorine bleach (5.25%, unscented) per gallon of clean water.
4. Allow to air dry.

Related Resources

- **USDA Meat and Poultry Hotline: 1-888-MPHotline.**
(Available questions and concerns about food safety)
- USDA Alert: Keeping Food Safe During Flooding and Power Outages
(USDA Food Safety Information related to Hurricane Katrina)
- Keeping Food Safe in an Emergency, U.S. Department of Agriculture
(General fact sheet and FAQs on food and water safety including guidance on when to discard perishable foods)
- Consumer Advice: Disaster Assistance with Food from [Foodsafety.gov](http://foodsafety.gov)
(Provides resources on food safety related to fires, floods, hurricanes, power outages)
- Food Safety Office, CDC
(Comprehensive food safety information)
- Sanitation and Hygiene
(Tips to help protect yourself from illness and disease)
- Food and Water Safety and Hand Hygiene Resources
(Easy-to-use posters, stickers, flyers, and PSAs with tips and information)

Water

Safe Drinking Water

After an emergency, especially after flooding, drinking water may not be available or safe to drink for personal use. **Do not use water you suspect or have been told is contaminated to wash dishes, brush your teeth, wash and prepare food, make ice, or make baby formula.**

Note: Caffeinated drinks and alcohol dehydrate the body, which increases the need for drinking water.



Floods and other disasters can damage drinking water wells and lead to aquifer and well contamination. Flood waters can contaminate well water with livestock waste, human sewage, chemicals, and other contaminants which can lead to illness when used for drinking, bathing, and other hygiene activities.

Before an emergency or a temporary problem with a community water system, a community drinking water treatment facility should have an emergency plan in the event that service is disrupted. Water treatment facilities monitor drinking water to meet federal and state regulations.

Make Water Safe

Water often can be made safe to drink by boiling, adding disinfectants, or filtering.

IMPORTANT: Water contaminated with fuel or toxic chemicals will not be made safe by boiling or disinfection. Use a different source of water if you know or suspect that water might be contaminated with fuel or toxic chemicals.

Boiling

If you don't have safe bottled water, you should boil water to make it safe. Boiling is the surest method to make water safer to drink by killing disease-causing organisms, including viruses, bacteria, and parasites.

You can improve the flat taste of boiled water by pouring it from one container to another and then allowing it to stand for a few hours, OR by adding a pinch of salt for each quart or liter of boiled water.

If the water is cloudy,

- Filter it through a clean cloth, paper towel, or coffee filter OR allow it to settle.
- Draw off the clear water.
- Bring the clear water to a rolling boil for one minute (at elevations above 6,500 feet, boil for three minutes).
- Let the boiled water cool.
- Store the boiled water in clean sanitized containers with tight covers.

If the water is clear,

- Bring the clear water to a rolling boil for one minute (at elevations above 6,500 feet, boil for three minutes).
- Let the boiled water cool.
- Store the boiled water in clean sanitized containers with tight covers.

Disinfectants

If you don't have clean, safe, bottled water and if boiling is not possible, you often can make water safer to drink by using a disinfectant, such as unscented household chlorine bleach, iodine, or chlorine dioxide tablets. These can kill most harmful organisms, such as viruses and bacteria. However, only chlorine dioxide tablets are effective in controlling more resistant organisms, such as the parasite *Cryptosporidium*. To disinfect water,

- Clean and disinfect water containers properly before each use. Use containers that are approved for water storage. Do not use containers previously used to store chemicals or other hazardous materials.
- Filter it through a clean cloth, paper towel, or coffee filter OR allow it to settle.
- Draw off the clear water.
 - When using household chlorine bleach:
 - Add 1/8 teaspoon (or 8 drops; about 0.625 milliliters) of unscented liquid household chlorine (5–6%) bleach **for each gallon of clear water** (or 2 drops of bleach for each liter or each quart of clear water). Add 1/4 teaspoon (or 16 drops; about 1.50 milliliters) of bleach **for each gallon of cloudy water** (or 4 drops of bleach for each liter or each quart of cloudy water).
 - Stir the mixture well.
 - Let it stand for 30 minutes or longer before you use it.
 - Store the disinfected water in clean, disinfected containers with tight covers.
 - When using iodine:
 - Follow the manufacturer's instructions.
 - Store the disinfected water in clean, disinfected containers with tight covers.
 - When using chlorine dioxide tablets:
 - Follow the manufacturer's instructions.
 - Store the disinfected water in clean, disinfected containers with tight covers.


Filters

Many portable water filters can remove disease-causing parasites such as *Cryptosporidium* and *Giardia* from drinking water. If you are choosing a portable water filter, try to pick one that has a filter pore size small enough to remove both bacteria and parasites. Most portable water filters do not remove viruses.

Carefully read and follow the manufacturer's instructions for the water filter you intent to use. After filtering, add a disinfectant such as iodine, chlorine, or chlorine dioxide to the filtered water to kill any viruses and remaining bacteria. For more information about water filters, see the Water Treatment Resources section.

Water Treatment Resources

To learn more about water filters and treatments that can remove microorganisms such as viruses, bacteria, and parasites (such as *Cryptosporidium*), see the following resources:

- A Guide to Water Filters
- A Guide to Drinking Water Treatment and Sanitation for Backcountry and Travel Use covers information on the effectiveness of various water treatment methods. This guide is also available in PDF: Drinking Water Treatment Methods for Backcountry and Travel Use  (870 KB/1 page).
- A Guide to Commercially-Bottled Water and Other Beverages
- Emergency Disinfection of Drinking Water

Finding Emergency Water Sources

Alternative sources of clean water can be found inside and outside the home. DO NOT DRINK water that has an unusual odor or color, or that you know or suspect might be contaminated with fuel or toxic chemicals; use a different source of water.

The following are possible sources of water:

Inside the Home

- Water from your home's water heater tank (part of your drinking water system, not your home heating system)
- Melted ice cubes made with water that was not contaminated
- Water from your home's toilet tank (not from the bowl), if it is clear and has not been chemically treated with toilet cleaners such as those that change the color of the water
- Liquid from canned fruit and vegetables
- Water from swimming pools and spas can be used for personal hygiene, cleaning, and related uses, but not for drinking.

Listen to reports from local officials for advice on water precautions in your home. It may be necessary to shut off the main water valve to your home to prevent contaminants from entering your piping system.

Outside the Home

- Rainwater
- Streams, rivers, and other moving bodies of water
- Ponds and lakes
- Natural springs


Water from sources outside the home must be treated as described in Make Water Safe.

Unsafe Water Sources

Never use water from the following sources:

- Radiators
- Hot water boilers (part of your home heating system)
- Water beds (fungicides added to the water and/or chemicals in the vinyl may make water unsafe for use)

Related Resources

- Water-related Emergencies and Outbreaks
(CDC's website dedicated to water needs before, during, and after disasters or emergencies)
- Drinking Water Wells
(Make sure your well water is safe)
- Personal Hygiene and Handwashing After a Disaster or Emergency
(Tips to help protect yourself from illness and disease)
- Food and Water Safety and Hand Hygiene Resources
(Easy-to-use posters, flyers, stickers, and PSAs with tips and information)
- Cleaning and Sanitizing With Bleach After an Emergency
(Information on how to keep surfaces clean to avoid the spread of germs)
- Guidelines for the Management of Acute Diarrhea (for Healthcare Providers)  (133 KB/3 pages)
(Acute diarrhea may occur in post-disaster situations where access to electricity, clean water, and sanitary facilities is limited)

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